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Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

In the Matter of )  
 )  
Advanced Television Systems )  
and their Impact upon the )  
Existing Television Broadcast )  
Service )

MM docket No. 87-268

TO: The Commission

REPLY COMMENTS OF BYRON W. ST. CLAIR

These reply comments are primarily to rebut the comments of Cornell University, which organization demands that ATV channels 36, 38, 52, 53 and 54 not be assigned to Puerto Rico or St. Croix.

WHERE DOES THE PUBLIC INTEREST ACTUALLY LIE?

Cornell makes their demand for the non-use of channels 36, 38, 52, 53 and 54 in Puerto Rico and St. Croix although there can be no argument over the scarcity of channels to implement ATV, particularly in Puerto Rico. This scarcity is, in fact, outlined in the Technical Statement<sup>1</sup> appended to their comments which points out "... Puerto Rico is second only to the northeast U.S. in terms of television station density . . . Puerto Rico has more than half of the TV broadcasting channels (34 out of 67) already allotted. The small size of Puerto Rico does not permit frequency reuse.. ."

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1. Technical Statement Concerning the Adverse Impact of Advanced Television Allotments on Radio Astronomy Facilities in Puerto Rico and the Virgin Islands, pg. 4, Sec. IV, para. 1

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Their comments go into considerable detail concerning the interference to be expected to radio astronomy activities if any one of the enumerated channels is put to use as an ATV channel and then, without examining the issue, use the conclusion that the protection of their activities is unquestionably more important than the broader objective of fully implementing the ATV system to serve the whole public. However, in my opinion it is necessary to look where the broader public interest actually lies.

In the 1963 to 1966 time frame when the reservation of channel 37 was first put in place and then made "permanent" it appeared that we had available UHF channels far beyond any expected need. No one much cared if one of these hard-to-use, second class channels was reserved and made unavailable for broadcasting. Since then broadcasting has lost channels 70 to 83, while progress in technology has made UHF broadcasting much more practical, and these channels are now frequently at a premium. In addition the Commission set up the Low Power broadcasting service to provide diversified voices for specialized audiences too small to be of interest to regular TV stations and these stations are slowly but surely growing in number to fulfill this promise. Thus with the proliferation of both kinds of UHF broadcasting and the coming of ATV with the accompanying need for simulcast channels it is no longer clear that it is in the public interest to reserve even one channel for radio astronomy, let alone putting restrictions on five more. This question becomes particularly germane in Puerto Rico where the combination of difficult terrain and two languages has created a pressing problem.

I urge the Commission to open for discussion the question of whether the "Public Interest" as it relates to the whole public allows the continuing reservation of channel 37 for radio astronomy, which intellectually satisfying as it may be to a limited group of scientists, is still a narrow special interest, and in no even to place further restrictions upon the use of any UHF channel.

## COMMENTS ON CALCULATIONS

The calculations presented in their Technical Statement<sup>2</sup> have a flaw or inconsistency which makes it impossible to judge whether the claims of the authors regarding interference are valid. Specifically this statement talks about "...a broadband second harmonic flux of -97.7 dBm at 1414 MHz." As flux properly refers to the power density of the field at a location expressed in watts or milliwatts per square meter and dBm is referenced to one milliwatt in a transmission line or a circuit such as a receiver input, it is incorrect to express flux in dBm. It is only possible to speculate that the authors have confused power density arriving at the antenna with the power delivered to the receiver.<sup>3</sup> Until an explanation of the calculations, including the assumptions made with respect to antenna characteristics, can be obtained no one can know whether the claimed problem actually exists.

## INTERFERENCE RESULTING FROM INTERMODULATION

It is true as claimed that strong signals can cause interference through the generation of products outside the frequency band of the source, even when the source signal is entirely proper. However, this should not as claimed be a basis for restricting the use of proper TV channels. Rather the solution should be

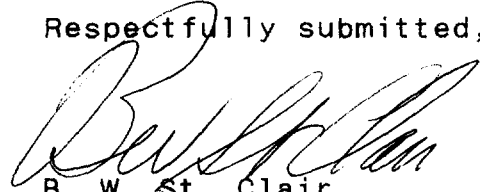
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2. Technical Statement Concerning the Adverse Impact of Advanced Television Allotments on Radio Astronomy Facilities in Puerto Rico and the Virgin Islands, Appendix to Cornell's comments, pg. 5, para. 2.

3. An attempt to clarify this apparent inconsistency with the engineering firm of du Treil, Lundin & Rackley resulted in a referral to the other author, Dr. Ing. Willem A. Baan at the National Astronomy and Ionospheric Center, Arecibo, P.R. So far it has not been possible to reach Dr. Baan to request a clarification. As the deadline for reply comments is imminent it is only possible to have the record show the unsupported conclusions claimed in the Technical Statement cannot be relied upon.

found, as is

customary in the industry, in curing the non-linearities in the receiving system where the products are generated, or excluding the undesired, but proper, signal from the active circuits in the receiver by actions taken at the receiver.

Respectfully submitted,



B. W. St. Clair  
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